
Name of Organization: Michigan Sea Grant

Type of Organization: College or University

Contact Information: Ms. Peggy Britt
Michigan Sea Grant
2200 Bonisteel Blvd
Ann Arbor MI 48109

Phone: (734) 647 - 0767 **Extension:**

Fax: (734) 647 - 0768

E-Mail: pbritt@umich.edu

Project Title: Great Lakes Exotic Species Graphic Library

Project Category: Exotic Species

Rank by Organization (if applicable): 0

Total Funding Requested (\$): 41,038 **Project Duration:** 2 Years

Abstract:

the last century, more than 140 exotic species have been introduced into the Great Lakes, some of which have had profound impacts on the ecosystem. For many other species, the effects are yet unknown. As researchers, policymakers and the public attempt to understand the long-term impact of exotic species, they turn to reputable organizations to provide sound, science-based information. Critical components of this information are the graphic images of individual species. Since 1991, Michigan Sea Grant has distributed more than 16,000 peer-reviewed images of exotic species through the Great Lakes Sea Grant Network Exotic Species Graphics Library. The Library--which contains 113 slides, photographs and illustrations of 15 exotic species--contributes to the understanding and control of aquatic nuisance species nationwide by providing high-quality graphics for use in educational and scientific presentations, displays, reports and as illustrations for newspaper articles and books. The images complement technical and educational literature on exotic species by presenting biological characteristics, common habitats, ecosystem impacts and effects on industry. The goal of this project is to streamline and upgrade the Exotic Species Graphics Library to become a top-quality graphic resource for all Great Lakes constituents--including researchers, policymakers, the news media and the public. This goal will be accomplished via four primary objectives: 1) Double the current collection over two years by obtaining peer-reviewed images of new exotic species that have a current impact or pose a potential threat to the Great Lakes ecosystem. 2) Create an electronic, high-resolution, print-ready version of all images in the collection. 3) Increase acquisition rate of images by electronically improving the graphic quality of submissions (currently 50% of the slides submitted to the collection are rejected for poor image quality). 4) Increase the cost-effectiveness and efficiency of the c

Geographic Areas Affected by the Project

States:

<input checked="" type="checkbox"/> Illinois	<input checked="" type="checkbox"/> New York
<input checked="" type="checkbox"/> Indiana	<input checked="" type="checkbox"/> Pennsylvania
<input checked="" type="checkbox"/> Michigan	<input checked="" type="checkbox"/> Wisconsin
<input checked="" type="checkbox"/> Minnesota	<input checked="" type="checkbox"/> Ohio

Lakes:

<input type="checkbox"/> Superior	<input type="checkbox"/> Erie
<input type="checkbox"/> Huron	<input type="checkbox"/> Ontario
<input type="checkbox"/> Michigan	<input checked="" type="checkbox"/> All Lakes

Geographic Initiatives:

<input type="checkbox"/> Greater Chicago	<input type="checkbox"/> NE Ohio	<input type="checkbox"/> NW Indiana	<input type="checkbox"/> SE Michigan	<input type="checkbox"/> Lake St. Clair
--	----------------------------------	-------------------------------------	--------------------------------------	---

Primary Affected Area of Concern: Not Applicable

Other Affected Areas of Concern:

For Habitat Projects Only:

Primary Affected Biodiversity Investment Area: Not Applicable

Other Affected Biodiversity Investment Areas:

Problem Statement:

The diverse public served by the Graphics Library plays an increasingly vital role in controlling the spread of aquatic nuisance species. As evidence, young anglers on two separate occasions in 1998 correctly identified round gobies from public information pieces and took specimens to their nearest DNR agencies for confirmation. Sightings of exotic species by a knowledgeable public help scientists track the spread of nonnative species--a process that sheds light on methods of introduction and effective methods of control. The Graphics Library is the primary source for these images in the Great Lakes.

However, just as use of the Graphics Library continues to grow, the quality of the slides themselves has deteriorated. In addition, the methods of distribution have not kept pace with technological advances in publishing. The process of acquiring, duplicating and mailing photographic slides limits both new acquisition and distribution. This project will provide a unique Internet-based, electronic image collection of images in a searchable format. At the completion of this project, the Graphics Library will be poised to expand to include aquatic nuisance species from other regions of the country or the Library can be used as a template to develop separate regional collections that are linked via the Internet.

Proposed Work Outcome:

1)Expanding the Graphics Library

The Exotics Species Graphics Library currently contains the following species of Great Lakes aquatic nuisance species: zebra mussels, quagga mussels, bythotrephes cederstroemii, round and tubenose goby, sea lamprey, Eurasian ruffe, purple loosestrife, water chestnut, Eurasian watermilfoil, and hydrilla. This project will result in doubling the size of the collection over two years. Project staff will work with aquatic nuisance species experts, ANS panels, and other stakeholders to identify and prioritize a list of species and images to acquire. This priority list will guide acquisitions for this project and future acquisition. Michigan Sea Grant will work to increase the Graphics Library by 50% in the first year by adding 50 top-quality images of priority aquatic nuisance species as identified by ANS experts. Each image in the Library will be reviewed for technical quality and scientific merit by experts from appropriate organizations and agencies in the region and around the nation.

2) Creating an Electronic Graphics Library

Concurrently, images in the collection will be scanned, and high-resolution TIFF files will be created. Images that have deteriorated over ten years of use will be improved in contrast and clarity. All new images will also be scanned into high-resolution files and the images improved when necessary. All images will be available electronically by the end of the grant period. These advances in technology will enable Michigan Sea Grant to increase the rate of acquisition by 50%.

Each new acquisition undergoes both scientific and graphic review. Currently, up to half of all submissions are rejected in this process due to poor graphic quality.

3) Increasing Acquisition Rates

Digitizing the collection allows for the improvement of the images, thus increasing the percent of graphics entered to the library in each review. To maintain graphic quality in slide reproduction, the library must maintain original work. Contributors have been reluctant to relinquish the originals of their best graphics. With an electronic system, Michigan Sea Grant will be able to return original work. As a further incentive, contributors will receive electronic versions of their submission, which in many cases will be an improved image.

4) Developing an Internet-based Distribution System

Finally, a web site will be developed that will house all the images in a searchable database. Michigan Sea Grant has developed a successful web-based ordering and distribution system for publications that increased distribution by 70%. We can use this capacity to deliver electronic versions of the graphics via the Internet. This result is a user-friendly distribution system that allows for both on-line viewing and downloading. Currently, part of the collection is viewable on-line but is not available in high-resolution files that are compatible with today's printing technology. Further, the collection will be searchable by species, habitat, impact, biological characteristics, common habitats, ecosystem impacts, effects on industry, and other key searches. These advances will make this collection uniquely user-friendly. Also, it will reduce the need for the time-consuming and costly process of taking orders, making copies of slides, and mailing to users. Therefore, current resources used for distribution can be allocated in the future toward expanding and updating the collection.

New images and the electronic format will be publicized via press releases, magazine articles, and direct mail of promotional materials. As well, the collection will be linked to key web sites, including the Great Lakes Information Network, the Sea Grant Nonindigenous Species Site, and other Great Lakes and ANS web sites.

Project Milestones:**Dates:**

Create Priority List of ANS	12/2000
Digitize current collection	03/2001
Develop Online Database	03/2001
Acquire new ANS graphics	01/2002
Digitize/improve new images	05/2002
Scientific/technical review: new images	06/2002
Enter new images in database	07/2002
Publicize new collection	07/2002

☐ Project Addresses Environmental Justice

If So, Description of How:

☒ Project Addresses Education/Outreach

If So, Description of How:

Since the Library was established, Michigan Sea Grant has distributed an estimated 16,000 slides and illustrations--2,795 in the last two years alone. Seventy percent of all Library users borrow or purchase slides for group or mass audiences, resulting in an estimated annual viewership in the millions. Media compose 30 percent of all Graphics Library users, and graphics have appeared in newspaper and magazine articles, newsletters and television stories around the nation and in Canada. Major U.S. newspapers-including The Wall Street Journal, The New York Times Magazine, The Washington Post and The Philadelphia Inquirer-have used Library graphics to reach an estimated 4 million people about the problem of nonindigenous species (based on circulation statistics). Educators, businesses, governmental staff, researchers, students, and other environmental specialists who interact with the public routinely use exotic species graphics. Over the years, non-media users have included a wide range of clients. Some examples include the following: The American Museum of Natural History's Center for Biodiversity (New York), Lake Erie Nature and Science Center (Ohio), U.S. Fish and Wildlife Service (West Virginia and Colorado), and Ministère de l'Environnement (Quebec). An upgraded, online graphics library would benefit this large and diverse audience by providing quick and easy access to top quality images of exotic species.

Project Budget:

	Federal Share Requested (\$)	Applicant's Share (\$)
Personnel:	23,467	7,186
Fringe:	6,101	2,420
Travel:	0	0
Equipment:	0	0
Supplies:	2,000	0
Contracts:	0	0
Construction:	0	0
Other:	0	0
Total Direct Costs:	31,568	9,606
Indirect Costs:	9,470	2,710
Total:	41,038	12,316
Projected Income:	0	0

Funding by Other Organizations (Names, Amounts, Description of Commitments):

Description of Collaboration/Community Based Support:

Michigan Sea Grant is currently collaborating with other Sea Grant programs to develop a unified directory of ANS information on the internet. This project will be integrated into that effort. Also, Michigan Sea Grant is currently collaborating with the Great Lakes Commission and other regional and ANS bodies on ANS projects. These connections will be leveraged to develop an advisory committee that inform Michigan Sea Grant on key species and types of images to add to the Graphics Library. Michigan Sea Grant will also work with ANS experts across the nation to secure images for the collection.